## REMARKS

By this Amendment, claims 1, 14, 17, 24, and 28-31 have been amended merely to further recite the claimed subject matter without the intention of narrowing any of the claims. Applicant has amended the currently pending claims in order to expedite prosecution and do not, by this amendment, intend to abandon subject matter of the claims as originally filed or later presented. Moreover, Applicant reserves the right to pursue such subject matter in a continuing application. Further, Applicant has made minor amendments to paragraphs 16 and 42 to correct for a typographical error and inconsistency. No new matter has been added. Claims 1-33 are pending in this patent application, of which claims 10-16, 22 and 24 are withdrawn from consideration. Reconsideration of the election requirement and the rejections in view of the remarks below is requested.

In response to the Election of Species Requirement made by the Examiner in a telephone conversation with the undersigned on July 6, 2005 and by the Office Action mailed July 18, 2005, Applicant hereby provisionally elects species I (the species depicted by Fig. 4). This election is made with traverse.

Applicant submits that claims 10-16, 22 and 24 read on the elected species. Applicant further submits that at least independent claim 1, from which each of claims 10-16, 22 and 24 depend, is generic.

Firstly, Applicant submits that the election of species requirement is improper for failing to provide any basis for the requirement to restrict. MPEP § 808 states: "Every requirement to restrict has two aspects: (A) the reasons (as distinguished from the mere statement of conclusion) why the inventions as claimed are either independent or distinct; and (B) the reasons for insisting upon restriction therebetween..." Examiner has failed to provide any reasoning for the selection of the particular species and why each of the "alleged" species are patentably distinct from the other species.

In addition, Applicant respectfully submits that the subject matter of each species is sufficiently related that a thorough search and examination of any one species would necessarily encompass the search and examination of the remaining species. Accordingly, it is submitted that the search and examination of the entire application can be conducted without serious burden and that the Election of Species Requirement fails to satisfy the criteria of MPEP §803. MPEP § 803 clearly states that "[i]f the search and examination of the entire application can be made without serious burden, the examiner must examine it on its

merits, even though it includes claims to distinct or independent inventions" (emphasis added). This policy should apply in the present application in order to avoid unnecessary duplicative examination by the U.S. Patent and Trademark Office.

Applicant also notes that the U.S. Patent Office would be required to allow claims to the non-elected species if presented in a divisional application filed according the restriction requirement, over this application. No double patenting rejection would be available and the term of subsequent divisional applications may be longer than the present application due to, for example, patent term extensions. Applicant expressly takes no position on whether the species are patentably independent or distinct from one another.

Claim 17 has been amended to delete the reference to the object and claim 23 has had its dependency amended to provide antecedent basis for the first object. Accordingly, reconsideration and withdrawal of the objection to claims 17 and 23 are respectfully requested.

The Office Action rejected claims 1-6, 9, 21, 27 and 29-33 under 35 U.S.C. §103(a) as being obvious in view of U.S. patent no. 5,610,683 to Takahashi et al. ("Takahashi et al.") further in view of U.S. patent no. 4,569,739 to Klinkowski ("Klinkowski"). Applicant respectfully traverses the rejection, without prejudice.

Applicant respectfully submits that Takahashi et al. and/or Klinkowski fail to disclose, teach or suggest a lithographic apparatus comprising, *inter alia*, a liquid supply system configured to at least partly fill a space between the projection system and the substrate with an immersion liquid and a power source configured to apply a first electrical potential across the immersion liquid supplied by the liquid supply system to move at least one of bubbles and particles, when in the space, in the immersion liquid as recited in independent claim 1, a liquid supply system configured to at least partly fill a space between the projection system and the substrate with an immersion liquid, wherein the liquid supply system comprises means for applying a charge to an object, the charge being opposite in polarity to an electrokinetic potential of bubbles in the immersion liquid such that at least one of bubbles and particles, when in the space, in the immersion liquid supplied by the liquid supply system have a force on them in a direction away from or towards the object as recited in claim 29, and a liquid supply system configured to at least partly fill a space between the projection system and the substrate with an immersion liquid, the liquid supply system having a potential field generator configured to generate an electrical field in the immersion liquid effective to move at least one of bubbles and particles, when in the space, in the immersion

liquid supplied by the liquid supply system as recited in claim 30. Further, Applicant respectfully submits that Takahashi et al. and/or Klinkowski fail to disclose, teach or suggest a device manufacturing method comprising, *inter alia*, providing an immersion liquid from a liquid supply system to the space between the projection system and the substrate and applying a force on at least one of bubbles and particles, when in the space, in the immersion liquid provided by the liquid supply system by applying a charge to an object as recited in claim 31.

As noted in paragraph 41 of the specification of this application, Applicant recognizes that it was previously discovered, in the mining industry, that small solid particles adhere to bubble surfaces in a liquid and that bubbles in a liquid have, on their surface, an electrokinetic (or zeta) potential which results in a potential difference between the surface of the bubble and the fully disassociated ionic concentration in the body of the liquid (which also applies to small particles). This understanding is reflected in Klinkowski and exploited in the electrofilter disclosed therein having an electrode assembly that may be used either as an anode, or a cathode, or both. For the dewatering of certain kaolin clay particles, which have a negative charge, the electrode assembly is placed as an anode, which has a positive charge, so that clay particles will migrate towards the electrode assembly and deposit as a cake layer on a membrane material when a direct current is applied to the electrofilter. If the particles in suspension are positively charged, the electrode assembly should be positioned at the cathode, which has a negative charge so it can attract the positively charged particles. *See, e.g.,* Klinkowski et al., col. 7, lines 20-40.

However, Applicant respectfully submits that the Office Action has not made a *prima facie* case that it would be obvious to apply the technology described in Klinkowski from a completely different art to a lithographic apparatus configured to project a patterned beam of radiation through a liquid. In particular, Applicant submits that it would not be obvious, for example, to apply a first electrical potential across the immersion liquid supplied by the liquid supply system to move at least one of bubbles and particles, when in a space between a projection system and a substrate, in the immersion liquid. Simply stating that it is "routine in the art" to combine Takahashi et al. with technology from a completely different art is not sufficient. In order for the Office Action to combine Takahashi et al. and Klinkowski, there must be clear and particular suggestion for such a combination in the prior art. *See, e.g.,* In re Dembiczak 175 F3d 994, 50 USPQ2d 1614 (Fed. Cir. 1999) (holding that there must be a clear and particular showing of a suggestion, teaching, or motivation to combine found in the

prior art). There is nothing in the cited references that suggests combining Takahashi et al., which discloses an immersion lithography apparatus, with Klinkowski, which discloses a clay dewatering apparatus.

Moreover, even assuming Takahashi et al. and Klinkowski may be combined (with which Applicant disagrees as noted above), Applicant submits that Klinkowski merely discloses a filter mechanism to remove particles from liquid but provides no disclosure, suggestion or motivation to moving bubbles or particles when between a projection system and a substrate. Indeed, Takahashi et al. teach away from this approach by disclosing a filter 21 for filtering out impurities from the liquid before it reaches the space between the projection system and the substrate, an ultrasonic vibration device 22 to prevent the adhesion of bubbles to the surface of the wafer, and a vacuum pump 24 for providing a negative pressure within the cassette to remove bubbles (Takahashi et al., col. 6, lines 38-43). Perhaps the Klinkowski technology may be applied to filter out impurities like filter 21, but Applicant respectfully submits there is no disclosure, suggestion or teaching on applying the Klinkowski technology to moving bubbles or particles when between a projection system and a substrate, when Takahashi et al. teaches away from that.

Therefore, for at least the above reasons, Takahashi et al. and Klinkowski fail to disclose, teach or suggest all the features recited by independent claims 1 and 29-31. Claims 2-6, 9, 21 and 27 depend from claim 1 and claims 32-33 depend from claim 31 and are, therefore, patentable for at least the same reasons provided above related to respectively claims 1 and 31, and for the additional features recited therein. As a result, Applicant respectfully submits that the rejection under 35 U.S.C. §103(a) of claims 1-6, 9, 21, 27 and 29-33 in view of Takahashi et al. and Klinkowski should be withdrawn and the claims allowed.

The Office Action rejected claims 7, 8 and 28 under 35 U.S.C. §103(a) as being obvious in view of Takahashi et al., further in view of Klinkowski and further in view of U.S. patent application publication no. 2004/0036019 to Goodley et al. ("Goodley et al."). Applicant respectfully traverses the rejection, without prejudice.

As noted above, Takahashi et al. and Klinkowski fail to disclose, teach or suggest independent claim 1. Claims 7 and 8 depend from claim 1 and are, therefore, patentable for at least the same reasons provided above regarding Takahashi et al. and Klinkowski as related to independent claim 1, and for the additional features recited in those dependent claims.

Further, Goodley et al. fail to overcome the shortcomings of Takahashi et al. and Klinkowski and/or to independently disclose, teach or suggest claims 7 and 8. For example, Goodley et al. fail to provide any disclosure, teaching or suggestion regarding a lithographic apparatus comprising, *inter alia*, a liquid supply system configured to at least partly fill a space between the projection system and the substrate with an immersion liquid and a power source configured to apply a first electrical potential across the immersion liquid supplied by the liquid supply system to move at least one of bubbles and particles, when in the space, in the immersion liquid as recited in independent claim 1. Like Klinkowski, Applicant respectfully submits that the Office Action has not made a *prima facie* case that it would be obvious to apply the technology described in Goodley et al. from a completely different art to a lithographic apparatus configured to project a patterned beam of radiation through a liquid. Moreover, even assuming Takahashi et al. and Goodley et al. may be combined (with which Applicant disagrees as noted above), Applicant respectfully submits there is no disclosure, teaching or suggestion on applying the Goodley et al. technology to moving bubbles or particles when in a space between a projection system and a substrate, when Takahashi et al. teaches away from that.

With respect to independent claim 28, Applicant respectfully submits that the combination of Takahashi et al., Klinkowski and Goodley et al. fail to disclose, teach or suggest a lithographic apparatus comprising, *inter alia*, a liquid supply system configured to at least partly fill a space between the projection system and the substrate with an immersion liquid, the liquid supply system having means for moving at least one of bubbles and particles, when in the space, in the immersion liquid supplied by the liquid supply system by the application of a voltage as recited in independent claim 28.

As noted above, Applicant respectfully submits that the Office Action has not made a *prima facie* case that it would be obvious to apply the technology described in Goodley et al. from a completely different art to a lithographic apparatus configured to project a patterned beam of radiation through a liquid. Moreover, even assuming Takahashi et al. and Goodley et al. may be combined (with which Applicant disagrees as noted above), Applicant respectfully submits there is no disclosure, suggestion or teaching on applying the Goodley et al. technology to moving bubbles or particles when in a space between a projection system and a substrate, when Takahashi et al. teaches away from that. Goodley et al. simply provide no different or additional disclosure, teaching or suggestion from Klinkowski regarding moving

at least one of bubbles and particles when in a space between a projection system and a substrate.

Therefore, for at least the above reasons, Takahashi et al., Klinkowski, and Goodley et al. fail to disclose, teach or suggest all the features recited by claims 7, 8 and 28. As a result, Applicant respectfully submits that the rejection under 35 U.S.C. §103(a) of claims 7, 8 and 28 in view of Takahashi et al., Klinkowski, and Goodley et al. should be withdrawn and the claims allowed.

The Office Action rejected claim 17 under 35 U.S.C. §103(a) as being obvious in view of Takahashi et al., further in view of Klinkowski and further in view of U.S. patent no. 4,013,554 to Reis et al. ("Reis et al."). Applicant respectfully traverses the rejection, without prejudice.

As noted above, Takahashi et al. and Klinkowski fail to disclose, teach or suggest independent claim 1. Claim 17 depends from claim 1 and is, therefore, patentable for at least the same reasons provided above regarding Takahashi et al. and Klinkowski as related to independent claim 1, and for the additional features recited in that dependent claim.

Further, Reis et al. fail to overcome the shortcomings of Takahashi et al. and Klinkowski and/or to independently disclose, teach or suggest claim 17. For example, Reis et al. fail to provide any disclosure, teaching or suggestion regarding a lithographic apparatus comprising, *inter alia*, a liquid supply system configured to at least partly fill a space between the projection system and the substrate with an immersion liquid and a power source configured to apply a first electrical potential across the immersion liquid supplied by the liquid supply system to move at least one of bubbles and particles, when in the space, in the immersion liquid as recited in independent claim 1. Like Klinkowski and Goodley et al., Applicant respectfully submits that the Office Action has not made a *prima facie* case that it would be obvious to apply the technology described in Reis et al. from a completely different art to a lithographic apparatus configured to project a patterned beam of radiation through a liquid. Moreover, even assuming Takahashi et al. and Reis et al. may be combined (with which Applicant disagrees as noted above), Applicant respectfully submits there is no disclosure, teaching or suggestion regarding applying a first electrical potential across immersion liquid supplied by a liquid supply system to move bubbles or particles. Rather, the anode and cathode in Reis et al. are merely provided to facilitate a chemical reaction to purify water. So, even if combinable with Takahashi et al, Reis et al. is simply not relevant.

Therefore, for at least the above reasons, Takahashi et al., Klinkowski, and Reis et al. fail to disclose, teach or suggest all the features recited by claim 17. As a result, Applicant respectfully submits that the rejection under 35 U.S.C. §103(a) of claim 17 in view of Takahashi et al., Klinkowski, and Reis et al. should be withdrawn and the claims allowed.

The Office Action rejected claims 18 and 19 under 35 U.S.C. §103(a) as being obvious in view of Takahashi et al., further in view of Klinkowski and further in view of U.S. patent no. 6,207,331 to Akutsu et al. ("Akutsu et al."). Applicant respectfully traverses the rejection, without prejudice.

As noted above, Takahashi et al. and Klinkowski fail to disclose, teach or suggest independent claim 1. Claims 18 and 19 depend from claim 1 and are, therefore, patentable for at least the same reasons provided above regarding Takahashi et al. and Klinkowski as related to independent claim 1, and for the additional features recited in those dependent claims.

Further, Akutsu et al. fail to overcome the shortcomings of Takahashi et al. and Klinkowski and/or to independently disclose, teach or suggest claims 18 and 19. For example, Akutsu et al. fail to provide any disclosure, teaching or suggestion regarding a lithographic apparatus comprising, *inter alia*, a liquid supply system configured to at least partly fill a space between the projection system and the substrate with an immersion liquid and a power source configured to apply a first electrical potential across the immersion liquid supplied by the liquid supply system to move at least one of bubbles and particles, when in the space, in the immersion liquid as recited in independent claim 1.

Applicant respectfully submits that the Office Action has not made a *prima facie* case that it would be obvious to apply the technology described in Akutsu et al. from a completely different art to a lithographic apparatus configured to project a patterned beam of radiation through a liquid. Moreover, even assuming Takahashi et al. and Akutsu et al. may be combined (with which Applicant disagrees as noted above), Applicant respectfully submits there is no disclosure, suggestion or teaching on how to apply the Akutsu et al. technology to moving bubbles or particles when in a space between a substrate and a projection system configured to project a patterned beam onto the substrate, when Takahashi et al. teaches away from that.

Therefore, for at least the above reasons, Takahashi et al., Klinkowski, and Akutsu et al. fail to disclose, teach or suggest all the features recited by claims 18 and 19. As a result, Applicant respectfully submits that the rejection under 35 U.S.C. §103(a) of claims 18 and 19

in view of Takahashi et al., Klinkowski, and Akutsu et al. should be withdrawn and the claims allowed.

The Office Action rejected claim 20 under 35 U.S.C. §103(a) as being obvious in view of Takahashi et al., further in view of Klinkowski and further in view of U.S. patent no. 5,223,331 to Ogawa et al. ("Ogawa et al."). Applicant respectfully traverses the rejection, without prejudice.

As noted above, Takahashi et al. and Klinkowski fail to disclose, teach or suggest independent claim 1. Claim 20 depends from claim 1 and is, therefore, patentable for at least the same reasons provided above regarding Takahashi et al. and Klinkowski as related to independent claim 1, and for the additional features recited in that dependent claim.

Further, Ogawa et al. fail to overcome the shortcomings of Takahashi et al. and Klinkowski and/or to independently disclose, teach or suggest claim 20. For example, Ogawa et al. fail to provide any disclosure, teaching or suggestion regarding a lithographic apparatus comprising, *inter alia*, a liquid supply system configured to at least partly fill a space between the projection system and the substrate with an immersion liquid and a power source configured to apply a first electrical potential across the immersion liquid supplied by the liquid supply system to move at least one of bubbles and particles, when in the space, in the immersion liquid as recited in independent claim 1.

Even assuming Takahashi et al., Klinkowski, and Ogawa et al. may be combined (with which Applicant does not necessarily agree), Applicant respectfully submits there is no disclosure, teaching or suggestion regarding applying a first electrical potential across immersion liquid supplied by a liquid supply system to move bubbles or particles. There is simply no discussion in Ogawa et al. of applying an electrical potential across a liquid. So, even if combinable with Takahashi et al. and Klinkowski, Ogawa et al. is simply not relevant.

Therefore, for at least the above reasons, Takahashi et al., Klinkowski, and Ogawa et al. fail to disclose, teach or suggest all the features recited by claim 20. As a result, Applicant respectfully submits that the rejection under 35 U.S.C. §103(a) of claim 20 in view of Takahashi et al., Klinkowski, and Ogawa et al. should be withdrawn and the claims allowed.

The Office Action rejected claim 23 under 35 U.S.C. §103(a) as being obvious in view of Takahashi et al., further in view of Klinkowski and further in view of U.S. patent application publication no. 2004-0017989 to So ("So"). Applicant respectfully traverses the rejection, without prejudice.

As noted above, Takahashi et al. and Klinkowski fail to disclose, teach or suggest independent claim 1. Claim 23 depends from claim 1 and is, therefore, patentable for at least the same reasons provided above regarding Takahashi et al. and Klinkowski as related to independent claim 1, and for the additional features recited in that dependent claim.

Further, So fails to overcome the shortcomings of Takahashi et al. and Klinkowski and/or to independently disclose, teach or suggest claim 23. For example, So fails to provide any disclosure, teaching or suggestion regarding a lithographic apparatus comprising, *inter alia*, a liquid supply system configured to at least partly fill a space between the projection system and the substrate with an immersion liquid and a power source configured to apply a first electrical potential across the immersion liquid supplied by the liquid supply system to move at least one of bubbles and particles, when in the space, in the immersion liquid as recited in independent claim 1.

Even assuming Takahashi et al., Klinkowski, and So may be combined (with which Applicant does not necessarily agree), Applicant respectfully submits there is no disclosure, teaching or suggestion in So regarding applying a first electrical potential across immersion liquid supplied by a liquid supply system to move bubbles or particles. Rather, there is no discussion in So of applying an electrical potential across a liquid. So, even if combinable with Takahashi et al. and Klinkowski, So is simply not relevant.

Therefore, for at least the above reasons, Takahashi et al., Klinkowski, and So fail to disclose, teach or suggest all the features recited by claim 23. As a result, Applicant respectfully submits that the rejection under 35 U.S.C. §103(a) of claim 23 in view of Takahashi et al., Klinkowski, and So should be withdrawn and the claims allowed.

The Office Action rejected claims 25 and 26 under 35 U.S.C. §103(a) as being obvious in view of Takahashi et al., further in view of Klinkowski and further in view of U.S. patent no. 5,289,001 to Arimoto et al. ("Arimoto et al."). Applicant respectfully traverses the rejection, without prejudice.

As noted above, Takahashi et al. and Klinkowski fail to disclose, teach or suggest independent claim 1. Claims 25 and 26 depend from claim 1 and are, therefore, patentable for at least the same reasons provided above regarding Takahashi et al. and Klinkowski as related to independent claim 1, and for the additional features recited in those dependent claims.

Further, Arimoto et al. fail to overcome the shortcomings of Takahashi et al. and Klinkowski and/or to independently disclose, teach or suggest claims 25 and 26. For example, Arimoto et al. fail to provide any disclosure, teaching or suggestion regarding a

lithographic apparatus comprising, *inter alia*, a liquid supply system configured to at least partly fill a space between the projection system and the substrate with an immersion liquid and a power source configured to apply a first electrical potential across the immersion liquid supplied by the liquid supply system to move at least one of bubbles and particles, when in the space, in the immersion liquid as recited in independent claim 1.

Even assuming Takahashi et al., Klinkowski, and Arimoto et al. may be combined (with which Applicant does not necessarily agree), Applicant respectfully submits there is no disclosure, teaching or suggestion regarding applying a first electrical potential across immersion liquid supplied by a liquid supply system to move bubbles or particles. There is no discussion in Arimoto et al. of applying an electrical potential across a liquid. So, even if combinable with Takahashi et al. and Klinkowski, Arimoto et al. is simply not relevant.

Therefore, for at least the above reasons, Takahashi et al., Klinkowski, and Arimoto et al. fail to disclose, teach or suggest all the features recited by claims 25 and 26. As a result, Applicant respectfully submits that the rejection under 35 U.S.C. §103(a) of claims 25 and 26 in view of Takahashi et al., Klinkowski, and Arimoto et al. should be withdrawn and the claims allowed.

All objections and rejections having been addressed, it is respectfully submitted that the present application is in condition for allowance. If questions relating to patentability remain, the Examiner is invited to contact the undersigned to discuss them.

Should any fees be due, please charge them to our deposit account no. 03-3975, under our order no. 081468/0308101. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced deposit account.

Respectfully submitted,
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